UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte CHRISTIAN BUCHLER and MARTEN ~~KABUTZ~~

Appeal No. 2006-1613
Application No. 09/579,736

ON BRIEF

Before THOMAS, JERRY SMITH and MACDONALD, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-3, 6, 9, 10 and 17.

The disclosed invention pertains to an apparatus for scanning optical recording media using a phase detection method.

Representative claims 1 and 10 are reproduced as follows:

1. An apparatus for reading from or writing to optical recording media, comprising:

a photodetector with at least two detector elements;

a phase forming unit for detecting a phase difference between output signals of the photodetector;

an edge sequence detector for detecting a sequence of edges of the output signals; and

a signal blocking unit for blocking an output signal of the phase forming until when an impermissible sequence of edges is detected.

10. A method for determining a correct track error signal utilizing a phase detection method, comprising the steps of:

checking a sequence of zero crossings whose phases are detected with regard to impermissible sequences; and

preventing the outputting of a phase value when an impermissible sequence is detected.

The examiner relies on the following reference:

Kuribayashi	6,317,396	Nov. 13, 2001 (Filed: Oct. 13, 1999)

The following rejection is on appeal before us:

1. Claims 1-3, 6, 9, 10 and 17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Kuribayashi. We note that the examiner has not maintained the rejection of claims 1-10, 13 and 17 as being anticipated by Shiyuuichi (JP 10-198981) or the rejection of claims 11 and 12 as being unpatentable over Shiyuuichi in view of Kuribayashi in the examiner's answer. Therefore, these rejections are presumed to have been withdrawn by the examiner.

Rather than repeat the arguments of appellants or the examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of anticipation relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the brief along with the examiner's

rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived. See 37 C.F.R.§ 41.37(c)(1)(vii)(2004). See also In re Watts, 354 F.3d 1362, 1368, 69 USPQ2d 1453, 1458 (Fed. Cir. 2004).

It is our view, after consideration of the record before us, that the evidence relied upon by the examiner does not support the examiner's rejection of claims 1-3, 6, 9, 10 and 17. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. §102, a single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation. Perricone v. Medicis Pharmaceutical Corp., 432 F.3d 1368, 1375-6, 77 USPQ2d 1321, 1325-6 (Fed. Cir. 2005), citing Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565, 24 USPQ2d 1321, 1326 (Fed. Cir. 1992). To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (internal citations omitted). "Every element of the claimed invention must be literally present, arranged as in the claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226,

1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (internal citations omitted).

At the outset, we note that the Kuribayashi reference is directed to a tracking error generating device which is capable of correctly detecting a phase difference and generating a normal tracking error even when the recording marks (or spaces) on an optical disc have short lengths [col. 2, lines 27-32 and 43-47, emphasis added]. The tracking error generating device employs, as evaluation target signals [col. 2, lines 58-61], respective output signals [see Ra+Rd and Rb+Rc, fig. 3, col. 1, lines 48 and 49] of light receiving elements [see elements A, B, C, and D of quadruple detector 11, fig. 3, col. 1, lines 37-45, emphasis added]. The tracking error generating device has a determination unit 40 [e.g., see determination circuit 42, fig. 3; see alternate embodiments shown in figs. 4, 5, 6, 11, 12, 13, 14, 15 and 16] for determining whether the evaluation target signals each have a sufficiently large amplitude or time width to generate a tracking error signal [col. 2, lines 21-37, emphasis added]. Kuribayashi further implements a selective phase difference supply circuit [see phase difference detector 23, fig. 3, col. 1, lines 46-49] for selectively [see gate 31, fig. 3, col. 4, line 34] supplying a phase difference signal to a smoothing circuit [see Low Pass Filter (LPF) 25, fig. 3, col. 1, lines 49-53] on the basis of a determination result of the determination circuit [see output of determination unit 40 as shown in fig. 3; see also the enable signal shown in figures 4, 5, and 6, emphasis added].

I. We consider first the examiner's rejection of independent claim 1 as being anticipated by Kuribayashi.

Appellants argue that Kuribayashi does not describe nor suggest an apparatus for reading from or writing to optical recording media including a photodetector having at least two detector elements, a phase forming unit for detecting a phase difference between output signals of the photodetector, an edge sequence detector for detecting a sequence of edges of the output signals of the photodetector, and a signal blocking unit that, in response to the edge sequence detector, blocks output signals of the phase forming unit when an impermissible sequence of edges is detected [brief, page 7, emphasis added]. Appellants further argue that Kuribayashl teaches a completely different arrangement in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width [*id.*, emphasis added].

In response, the examiner notes that Kuribayashi teaches a pattern at col. 5, line 15 through col. 6, line 25 [answer, page 4, emphasis added]. The examiner argues that the disclosed pattern meets the recited impermissible sequence requirement, and the disabling of the gate circuit is operational when an "impermissible sequence" exists [*id.*, emphasis added]. The examiner further asserts that appellants are impermissibly reading limitations from the specification into the claim language to define the scope of the invention [answer, page 4].

"During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification." In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). The broadest reasonable interpretation of the claims must also be consistent with

the interpretation that those skilled in the art would reach. In re Cortright, 165 F.3d 1353, 1358, 49 USPQ2d 1464, 1467 (Fed. Cir. 1999). Claim language is given its plain, ordinary, or accustomed meaning to one of ordinary skill in the relevant art, unless the applicant has imparted a novel meaning to the language. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325, 63 USPQ2d 1374, 1380 (Fed. Cir. 2002). The words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The Court of Appeals for the Federal Circuit has further determined that definitions of claim language need not be expressly defined but may be defined by implication in the specification, stating that "the specification is the 'single best guide to the meaning of a disputed term' and that the specification 'acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.' " Phillips v. AWH Corp., 415 F.3d 1303, 1321, 75 USPQ2d 1321, 1332 (Fed. Cir. 2005) (en banc) (internal citations omitted).

When we apply the broadest reasonable interpretation to the claims that is consistent with the instant specification, we find that Kuribayashi clearly teaches a photodetector with at least two detector elements [see quadruple detector 11, fig. 3], and a phase forming unit for detecting a phase difference between the output signals of the photodetector, as claimed [see phase difference detector 23, fig. 3]. We also agree with the examiner [answer, page 3] that Kuribayashi clearly teaches a signal blocking unit for blocking an output signal of the phase forming unit [see gate 31, fig. 3].

However, we note that Kuribayashi's determination circuit 42 [fig. 3] is directed to detecting sufficiently large amplitudes and wide pulse widths from light receiving elements (A, B, C, and D) of quadruple detector 11, as necessary for accurate detection of the phase difference by phase difference detector 23 [col. 4, lines 3-59; see also col. 2, lines 15-27, emphasis added]. We note that Kuribayashi's determination circuit 42 [fig. 3], uses two diagonal summation signals "Ra+Rd" and "Rb+Rc" as inputs to adder 41 that generates a third summation signal (Ra+Rd + Rb+Rc) that is applied as an input to determination circuit 42 [see fig. 3, col. 4, lines 29-47]. When the amplitude (or pulse width) of the third summation signal is sufficient for detection of a phase difference by phase difference detector 23, an instruction (i.e., control) signal is generated by determination unit 40 that is further provided as an ENABLE / DISABLE signal to the input of control gate 31 [fig. 3, col. 4, lines 33-47]. This effectively enables the generation of a tracking error signal only when the output signals from the light receiving elements (i.e., elements A, B, C, and D of quadruple detector 11) have sufficiently large amplitudes or wide pulse widths such that the phase difference can be correctly detected as a time difference between the zero cross points of the respective signals [col. 4, lines 3-59; see also col. 2, lines 15-27, emphasis added]. Significantly, we find that Kuribayashi's determination circuit 42 (and/or determination unit 40) does not rely upon the detection of a sequence of edges from the light receiving elements (A, B, C, and D) of quadruple detector 11 [emphasis added].

We note that Kuribayashi teaches nine separate embodiments of determination circuit 42 and/or determination unit 40, as shown in figures 4, 5, 6, 11, 12, 13, 14, 15 and 16, respectively [emphasis added]. However, we note that the examiner relies upon the second embodiment of the determination circuit (as shown in fig. 5) for allegedly teaching a pattern that meets the impermissible sequence requirement recited in both independent claims 1 and 10 [answer, pages 3 and 4, emphasis added].

We note that the embodiment of the determination circuit shown in fig. 5 implements a binarizing circuit 45 that converts the summed analog signal output of adder 41 [fig. 3] to a time series of binary pulses based upon the analog signal crossing a predetermined threshold [col. 5, lines 18-20]. The serial pulse train output (a) from binarizing circuit 45 is then converted to parallel form by shift register 48 [col. 5, lines 21-23], whereupon the binary parallel signals are compared by comparator 49 against a predetermined binary pattern (b) [col. 5, lines 24-27]. Binary pattern (b) represents, for example, a pattern sequence having a sequence of the shortest marks, this being indicative of a criteria for determining whether or not the read signal has a sufficient amplitude or pulse width to correctly detect a phase difference [col. 5, lines 24-31, emphasis added]. If the value of pulse train (a) [in parallel form] matches any part of predetermined pulse train pattern (b) [also in parallel form], then a DISABLE signal is generated at the output of comparator 49 [col. 5, lines 32-53]. Conversely, if the value of pulse train (a) does not match any part of predetermined pulse train pattern (b), then an ENABLE signal is generated at the output of the comparator 49 [col. 5, lines 32-53]. In particular, we note that the function of the determination

circuit shown in fig. 5 is to detect sufficiently large amplitudes and wide pulse widths from the light receiving elements [A, B, C, and D, fig. 3], as necessary for accurate detection of the phase difference by phase difference detector 23 [col. 5, lines 45-52; see figures 3 and 5, emphasis added].

We note that Kuribayashi's third embodiment of the determination circuit, as shown in fig. 6 (and cited by the examiner on page 4 of the answer) implements two comparators (i.e., comparators 51 and 52) that compare the sum signal (a) with respective positive and negative predetermined values to generate an ENABLE signal as a function of a logical AND between the outputs of comparators 51 and 52 [col. 5, lines 54-67, cont'd col. 6, lines 1-5]. In particular, we note that the determination circuit shown in fig. 6 (and further described in col. 6, lines 6-25) also relies upon a determination of the amplitude of the output signals of the light receiving elements as a means to generate an ENABLE signal [emphasis added].

Significantly, we find that all nine separate embodiments of determination circuit 42 and/or determination unit 40 (as shown in figures 4, 5, 6, 11, 12, 13, 14, 15 and 16) rely upon a determination of sufficiently large amplitudes and/or wide pulse widths of the output signals of the light receiving elements (i.e., elements A, B, C, and D) of quadruple detector 11 as a means to generate an ENABLE signal [emphasis added]. We find that this is true, even though several variations of adders, comparators, and the like, are implemented to realize the nine determination unit embodiments taught by Kuribayashi.

We recognize that the embodiment of the determination unit shown in fig. 5 (as relied upon by the examiner) utilizes a binary serial pulse train that is converted to parallel form and subsequently compared with a predetermined pattern sequence, as discussed *supra* [see Kuribayashi, col. 5, lines 24-31 and 58-67]. We further note that edge-triggered digital logic devices are responsive to the occurrence of a particular edge (i.e., they change state according to either a rising edge or a falling edge, depending upon the particular type of device). We also recognize that any binary serial pulse train inherently contains a series of rising and falling edges, (i.e., corresponding to the beginning and end of each binary pulse).

However, we do not find that any of Kuribayashi's nine determination units fairly teach an edge sequence detector for detecting a sequence of edges of the output signals of the photodetector, as required by the language of claim 1. In contrast, we find that each of the nine determination units disclosed by Kuribayashi teach essentially equivalent means for detecting sufficiently large amplitudes and/or wide pulse widths of the output signals of the light receiving elements (A, B, C, and D) of quadruple detector 11 as a means to generate an ENABLE signal to gate a tracking error signal [emphasis added]. While the determination unit embodiment relied upon by the examiner (as shown in fig. 5) does attempt to match a predetermined pattern or sequence of pulses as indicative of sufficient amplitude or pulse width [col. 5, lines 24-31], we find that the determination unit is not looking for a particular sequence of signal edges, per se [emphasis added]. In particular, we note that to sustain the examiner on this point would require speculation on our part. We find that

the portion of the reference relied upon by the examiner fails to provide the support necessary to affirm [col. 5, lines 15-67, cont'd col. 6, lines 1-25; see also answer p. 4]. We do not agree with the examiner that appellants are reading limitations from the specification into the claims to define the invention [answer, page 4]. We therefore agree with appellants that Kuribayashl teaches a different arrangement in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line (i.e., pulse) width [brief, page 7, emphasis added]. Accordingly, we will not sustain the examiner's rejection of independent claim 1.

II. We next consider the examiner's rejection of independent claim 10 as being anticipated by Kuribayashi.

Appellants argue that Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected [brief, page 8, emphasis added]. Appellants further argue that Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width [*id.*].

The examiner applies the same arguments proffered with respect to claim 1 to claim 10 [answer, page 4].

We note that Kuribayashi explicitly teaches that the output signals of the light receiving elements (i.e., elements A, B, C, and D of quadruple detector 11) have small amplitudes and narrow time widths between zero cross points when short marks (or spaces) are being tracked (as shown in fig. 2B), such that zero cross points cannot be reliably detected [emphasis added]. See Kuribayashi at col. 2, lines 21-37:

> FIG. 2A illustrates output signals of light receiving elements when long marks (or spaces) are being tracked. In this event, the output signals of the light receiving elements have sufficiently large amplitudes and wide time widths between zero cross points, so that the phase difference can be correctly detected as a time difference between zero cross points of the respective signals. On the others hands, when short marks (or spaces) are being tracked as illustrated in FIG. 2B, the output signals of the light receiving elements have small amplitudes and narrow time widths between zero cross points, so that zero cross points cannot be reliably detected. Furthermore, in some cases, the output signals may not cross the zero level. Thus, the conventional tracking error generating device has a problem in that it cannot correctly detect the phase difference in some cases, and therefore fails to generate a correct and accurate tracking error signal.

Because Kuribayashi explicitly discloses that zero cross points cannot be reliably detected when short marks (or spaces) are being tracked [col. 2, lines 27-32], we agree with appellants that Kuribayashl does not fairly teach checking a sequence of zero crossings whose phases are detected with regard to impermissible sequences, as claimed [claim 10, emphasis added]. We agree with appellants that Kuribayashi teaches a different arrangement in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line (i.e., pulse) width [brief, page 8, emphasis added]. Accordingly, we will not sustain the examiner's rejection of independent claim 10.

Because each of the remaining dependent claims 2, 3, 6, 9 and 17 depends directly or indirectly upon independent claim 1 or independent claim 10, we will likewise not sustain the examiner's rejection of these claims. In summary, we will not sustain the examiner's rejection of any claims under appeal. Therefore, the decision of the examiner rejecting claims 1-3, 6, 9, 10 and 17 is reversed.

REVERSED

JAMES D. THOMAS
Administrative Patent Judge

JERRY SMITH
Administrative Patent Judge

ALLEN R. MACDONALD
Administrative Patent Judge

BOARD OF PATENT APPEALS AND INTERFERENCES

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